REMARKS

Reconsideration and allowance of the captioned application in view of the foregoing amendments and the remarks which follow, are respectfully requested.

The claims in the application are claims 14 through 17.

The Office Action has noted the use of the term Polymer 1163 in the present application. As requested in the Office Action, Polymer 1163 has been capitalized and accompanied by its generic terminology wherever it appears. This generic terminology is methacrylamidopropropyl dimethylamine-vinylpyrrolidone copolymer. Claim 15 has been amended to claim a composition instead of a polymer so that claim 15 is now congruent with its base claim 14. Claim 16 has been similarly corrected. Claim 16 has also had its base claim changed from claim 1 to claim 14 as requested in the Office Action.

Claims 14 through 17 have been rejected under 35 USC § 112 as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors' had possession of the claimed invention. More specifically, the Office Action alleges that the specification does not provide a written description as a saccharide with greater than 55 monomer units. This rejection is respectfully traversed.

Page 6, lines 2 through 5 of the specification quite clearly state that the saccharides used in the present invention preferably have greater than 55 monomer units. Moreover, saccharides listed on page 9 of the present specification have more than 55 monomer units. Applicants have illustrated this by providing literature with respect to two of such saccharides. Specifically guar gum, which is listed on page 9, line 16 of the present specification is described in the enclosed pages of internet site www.sbuac.uk./water/hygua.html (Exhibit A). This literature reference describes guar gum as having the saccharide units galactose and manose and furthermore having saccharide units up to 10,000 saccharide residues.

Enclosed pages from the internet web site www.aco-foam.com/structure.asp (Exhibit B) describe the chemical structure of amylose as having between 500 and 2,000 glucose units. Amylose is another polysaccharide which is set forth in the present specification at page 9, line 7.

The MPEP at section 2163.04 on page 2100-169 states that in rejecting a claim for lack of written description requirement, the Office Action must set forth express findings of fact which support such lack of written description conclusion. These findings of fact should identify the claim limitation at issue. The claim limitation is identified in the present Office Action which states that a written description of a saccharide with greater than 55 monomer units is lacking. However, the Office Action must also set forth a prima facie case by providing reasons why a person skilled in the art at the time the application was filed, would not have recognized that the inventor was in possession of the invention as claimed in view of the disclosure of the application as filed. A simple statement that the applicant has not pointed out where the claim is supported may be sufficient. However, here the applicants have specifically pointed out with examples of saccharides and with the statement at page 6, lines 2 through 5 of the specification that the claim limitations of saccharides having greater than 55 monomer units is present.

MPEP section 2163.04, specifically states that the burden is on the Examiner with regard to supporting a written description rejection. A description as filed is presumed to be adequate unless or until sufficient evidence of reasoning to the contrary has been presented by the Examiner to rebut the presumption. The Examiner, therefore, must have a reasonable basis to challenge the adequacy of the written description. The Examiner has the initial burden of presenting by a preponderance of evidence why a person skilled in the art would not recognize in an applicants' disclosure a description of the invention as defined by the claims. In the present Office Action, no basis or prima facie case for a failure of written description requirement has been made, and indeed to the contrary, the applicants have pointed out where in the specification the claim recitation of 55 monomer units or greater for the saccharide, is supported. Therefore, withdrawal of the written description requirement rejection is respectfully requested.

Claim 16 has been rejected under 35 USC § 112 second paragraph for improperly depending from cancelled claim 1. The undersigned thanks the Examiner for pointing this out. Claim 16 has been amended to properly depend from claim 14. Therefore, withdrawal of this rejection under 35 USC § 112 second paragraph is respectfully requested.

Claims 14 through 17 have been rejected under 35 USC § 103(a) as being unpatentable over US Patent 5,985,294 (herein after "Peffly"). This rejection is respectfully traverse.

At page 4 of the Office Action, it is expressly conceded that Peffly does not disclose a composition comprising the instantly claimed holding polymer, a saccharide with greater than 55 monomer units. It is further asserted that the monomer units of the saccharide and the ratio of polymer to saccharide are not given patentable weight absent evidence to the contrary. However, table 9, on page 26 of the specification shows that a disaccharide (sucrose) as compared to a saccharide with greater numbers of mononer units (POLYMER 1163) has increased stickiness. Since the present case includes evidence of the advantage of both the number of monomer units, these claim limitations must be given patentable weight. Since these claim limitations are not set forth in Peffly, and since they are not suggested by Peffly, withdrawal of the rejection under 35 USC § 103(a) is respectfully requested.

Since the stickiness and crustiness aspects of the present hair styling and holding compositions has not even been discussed in the cited publication, there would be no motivation for one skilled in the art to modify the amount of ingredients cited in the publication so as to arrive at the claim compositions.

Again, withdrawal of this rejection under 35 USC § 103(a) is respectfully requested.

The applicants note that the double patenting rejection over co-pending serial application 09/275,149 has been removed since the latter application has been abandoned.

Since all of the claims are in proper form and have been patentably distinguished over the publications of record an early notification of allowance is respectfully requested.

If a telephone conference would be of assistance in advancing the prosecution of this application, applicant's undersigned attorney invites the Examiner to telephone him at the number provided.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attachment is captioned "Version With Markings To Show Changes Made".

In view of the foregoing amendments and remarks, early favorable action is solicited.

Respectfully submitted,

Matthew Boxer
Registration No. 28,495
Attorney for Applicant(s)

MB/lae
(201) 840-2963

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION;

On page 20, line 9, please delete "Polymer 1163 (10%)" and insert therefore "POLYMER 1163 (10%) methacrylamidopropropyl dimethylamine-vinylpyrrolidone copolymer.

On page 24, line 4, please delete "Polymer 1163 (10%)" and insert therefore "POLYMER 1163 (10%) methacrylamidopropropyl dimethylamine-vinylpyrrolidone copolymer.

On page 26, line 5, please delete "Polymer 1163 (10%)" and insert therefore "POLYMER 1163 (10%) methacrylamidopropropyl dimethylamine-vinylpyrrolidone copolymer.

IN THE CLAIMS:

17. (Amended) A hair styling ~~polymer~~ composition according to claim 14, wherein the ratio of (a) to (b) is about 1.0:1.25 to about 1.0:01.

18. (Amended) A hair styling composition according to claim ~~1~~ 14, wherein the ratio of (a) to (b) is about 1.0:0.7.

Exhibit A

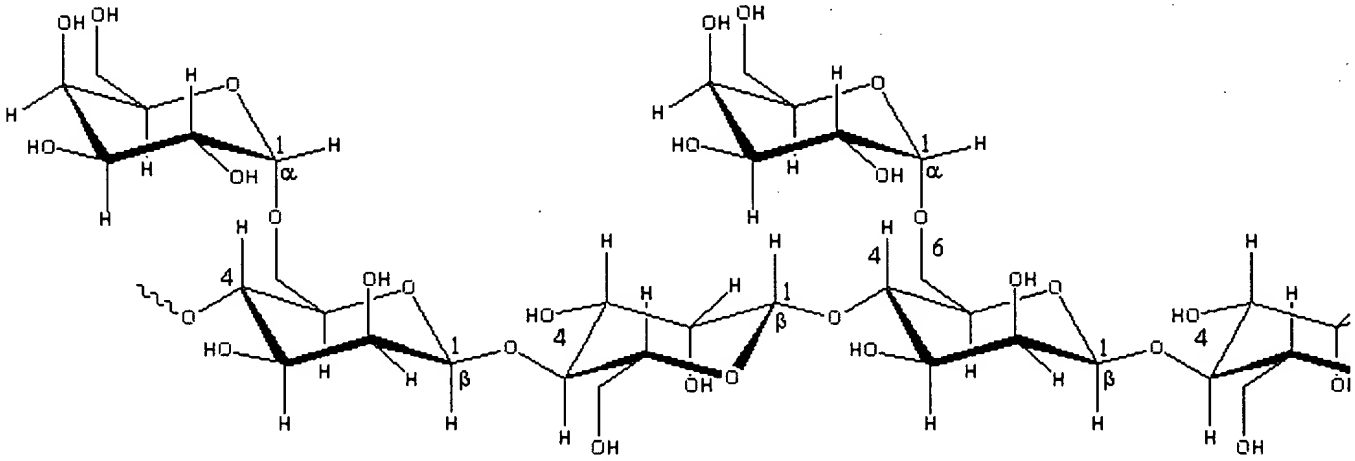
Guar gum

Source

Guar gum (**E412**, also called guaran) is extracted from the seed of the leguminous shrub *Cyan tetragonoloba*, where it acts as a food and water store.

Structural unit

Guar gum is a galactomannan[a] similar to **locust bean gum** consisting of a (1→4)-linked β-D-mannopyranose backbone with branchpoints from their 6-positions linked to α-D-galactose 1→6-linked-α-D-galactopyranose). There are between 1.5 - 2 mannose residues for every gala residue.



Molecular structure

Guar gum is made up of non-ionic polydisperse rod-shaped polymers consisting of molecules (found in **locust bean gum**) made up of about 10,000 residues. Higher galactose substitution al increases the stiffness (i.e. decreases the flexibility) but reduces the overall extensibility and ra **gyration** of the isolated chains [**291**]. The galactose residues prevent strong chain interactions unsubstituted clear areas have the minimum number (about 6) required for the formation of jun Of the different possible galactose substitution patterns, the extremes of block substitution and substitution give rise to the stiffer, with greater radius of gyration, and most flexible conformatio respectively (random substitution being intermediate) [**291**]. If the galactose residues were perf randomized, it unlikely that molecules would have more than one such area capable of acting a zone, so disallowing gel formation. A block substitution pattern, for which there is some experim evidence [**322**], would allow junction zone formation if the blocks were of sufficient length. Enz hydrolysis of some of the galactose side chains (e.g. using legume α-galactosidase) may allow be used to replace a dwindling locust bean gum supply.

Functionality

Guar gum is an economical thickener and stabilizer. It hydrates fairly rapidly in cold water to giv

viscous **pseudoplastic** solutions of generally greater low-shear viscosity when compared with o hydrocolloids and much greater than that of **locust bean gum**. High concentrations (~ 1%) are **thixotropic** but lower concentrations (~ 0.3%) are far less so. Guar gum is more soluble than lo **gum** and a better emulsifier as it has more galactose branch points. Unlike **locust bean gum**, it form gels but does show good stability to freeze-thaw cycles. Guar gum shows high low-shear is strongly shear-thinning. Being non-ionic, it is not affected by ionic strength or pH but will deg extremes at temperature (e.g. pH 3 at 50°C). It shows viscosity synergy with **xanthan gum**. Wit becomes slightly thixotropic forming a biphasic system containing casein micelles.

Guar gum retards ice crystal growth non-specifically by slowing mass transfer across solid/liqui

Interactive structures are available (COW [**Plug-in**, **ActiveX**], 43 KB; **Chime**, 19 KB, includes cr structure).

[a] Another galactomannan with lower substitution (with a mannose to galactose ratio of about 3: gum (**E417**), obtained from *Cesalpinia spinosa*. It has properties between those of guar gum ar bean gum. Higher substituted galactomannans are found in fenugreek gum (*Trigonella foenum* and mesquite gum (*Prosopis juliflora*), with mannose to galactose ratio of about 1:1 and 5:4 res The higher substitution of these gums give them improved solubility, dispersiveness and emuls (although some report this emulsification activity is due to protein impurities [**309**]). [**Back**]

Please submit any **comments and suggestions** you may have.

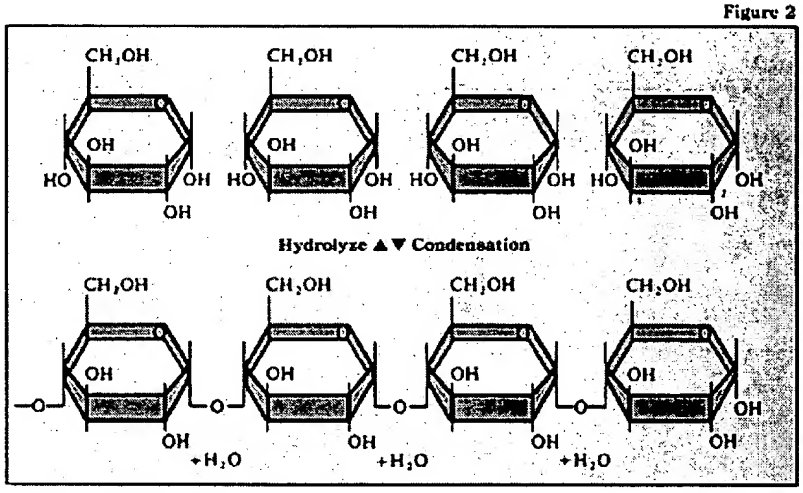
Water: Home | Hydrocolloids | Polysaccharide hydration | Hydrogen bonding | South Bank Universi

This page was last updated by **Martin Chaplin**
on **1 August, 2002**

The Structure of Starch

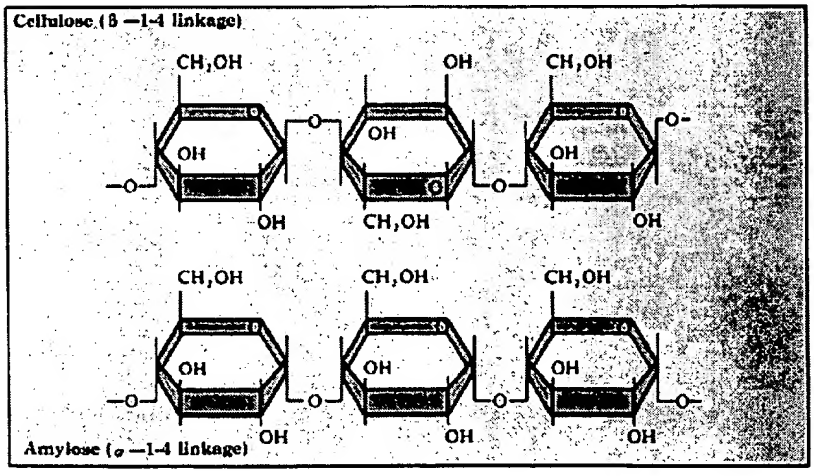
The building blocks of carbohydrates are alpha-D and beta-D glucose which contain six (6) carbon atoms and form pyranose rings. Through enzymatic condensation, one molecule of water is split out between two molecules of glucose to form a bond. This condensation occurs predominantly between carbons 1 and 4 (Fig. 2) but occasionally between 1 and 6. Where only the alpha-1,4 linkage develops, a linear chained homopolymer results, which we refer to as amylose. (Fig. 3) .

Figure 2



Starch — glucose polymer

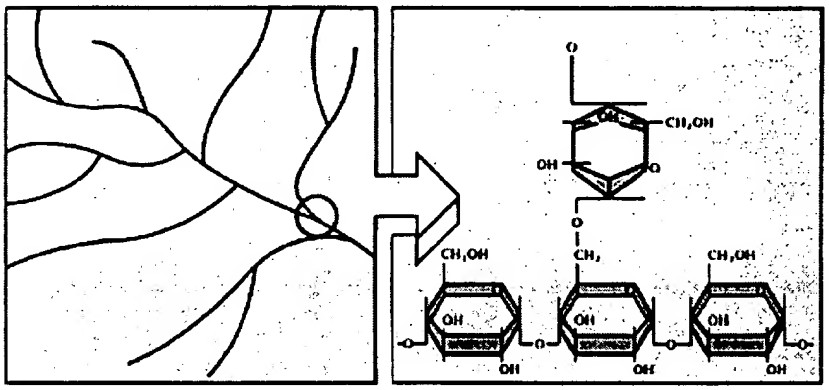
Figure 3



The length of this chain will vary with plant source but in general the average length will run between 500 and 2,000 glucose units.* It is interesting to note that amylose and cellulose are very similar in structure with the single exception of the spatial arrangement of the bridging between the numbers 1 and 4 carbons. The beta glucose form found in cellulose results in a rigid molecule with strong intermolecular bonding

which is not digestible by humans. The alpha linkage of amylose allows it to be flexible and humanly digestible. The second type of polymer in starch develops when the enzymatic condensation between glucose units occurs at carbons 1 and 6. This occasional linkage, along with the predominant 1,4 bonding, results in a branching effect and the development of a molecule much more massive in size than amylose but with linear chain lengths of only 25-30 glucose units. This molecule is called amylopectin. (Fig. 4).

Figure 4



Amylopectin

*Traditionally, amylose is considered only linear in configuration, but recent investigations indicate the presence of limited branching in some amylose molecules. However, for the sake of simplicity and better understanding of the properties of amylose, this presentation will ignore those findings and consider amylose as linear only.

All starches are made up of one or both of these molecules but the ratio of one to the other will vary with the starch source. Corn has about 25-28% amylose with the remainder being amylopectin. High amylose corn can run as high as 80%amaylose content. Tapioca has about 17% amylose, and waxy maize has virtually none. As might be predicted from this data, the cooked characteristics of tapioca lie somewhere between those of corn and waxy maize, and the characteristics of corn are greatly accentuated in high amylose corn.

BACK TO TOP